<u>IN THE CLAIMS</u>:

Please AMEND claims 1, 3, 7, 8, 10, 13-15, 18, 21, 23, 25 and 27, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1. (Currently Amended) A measuring system for measuring performance of an imaging optical system by use of an interferometer, said measuring system comprising:

an interferometer arranged to measure transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side imaging points of the plural measurement points are measured; and

a computing unit being communicated with said interferometer, said computing unit being operable to calculate ~~a wavefront as measured by said interferometer and~~ at least one of a wavefront aberration and an imaging state of the imaging optical system <u>on the basis of</u> <u>information regarding the transmission wavefronts and the position coordinates of the object side</u> <u>and image side imaging points</u>, and said computing unit being operable to correct a ~~measured~~ <u>calculated</u> value related to at least one of a wavefront aberration and an imaging state of the imaging optical system at ~~another~~ <u>a</u> measurement point, while taking, as a reference, at least one of a wavefront aberration and an imaging state at a standard point set along a plane perpendicular to the optical axis.

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2. (Original) A measuring system according to Claim 1, wherein the measurement of a transmission wavefront and position coordinates with respect to the standard point is performed plural times more than the measurement of the transmission wavefront and position coordinates with respect to another measurement point.

3. (Currently Amended) A measuring system according to Claim 2, wherein the measurement of the transmission wavefront and position coordinates with respect to the standard point is performed simultaneously and every time the measurement of the transmission wavefront and position coordinates with respect to another measurement point is performed.

4. (Original) A measuring system according to Claim 1, wherein the standard point is an object point and an image point on the optical axis of the imaging optical system.

5. (Original) A measuring system according to Claim 1, wherein the position coordinates of the measurement point concern a relative coordinate system with respect to the position coordinates of the standard point.

6. (Original) A measuring system according to Claim 1, wherein the optical system for measurement of the standard point is provided separately from an optical system for measurement of the other measurement point.

7. (Currently Amended) A measuring system according to Claim 6, wherein the optical system for measurement of the other measurement point is movable at the object plane side and the image plane side and ~~it~~ the optical system has a laser interferometer for monitoring the position coordinates thereof.

8. (Currently Amended) A measuring system according to Claim 6, ~~wherein thee are~~ further comprising optical systems for measurement of the other measuring points, the number of which corresponds to the number of the measurement points.

9. (Original) A measuring system according to Claim 1, wherein the measurement with respect to the standard point and the other measurement points is carried out by use of one and the same optical system.

10. (Currently Amended) A measuring system according to Claim 9, wherein the same optical system for measurement of the standard point and the measurement point is movable at the object plane side and the image plane side, and ~~there is~~ further comprising a laser interferometer for monitoring the moved position coordinates.

11. (Original) A measuring system according to Claim 1, wherein, in an optical system for the other measurement point, a chief ray of light impinging on the measurement points is registered with a direction of a chief ray of the imaging optical system.

12. (Original) A measuring system according to Claim 1, wherein the imaging state includes distortion and curvature of field.

13. (Currently Amended) A projection exposure apparatus for performing projection exposure by use of an imaging optical system, said apparatus comprising:

       an imaging optical system;

       an interferometer arranged to measure transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side imaging points of the plural measurement points are measured; and

       a computing unit being communicated with said interferometer, said computing unit being operable to calculate a wavefront as measured by said interferometer and at least one of a wavefront aberration and an imaging state of the imaging optical system on the basis of information regarding the transmission wavefronts and the position coordinates of the object side and image side imaging points, and said computing unit being operable to correct a measured caclulated value related to at least one of a wavefront aberration and an imaging state of the imaging optical system at another a measurement point, while taking, as a reference, at least one of a wavefront aberration and an imaging state at a standard point set along a plane perpendicular to the optical axis.

14. (Currently Amended) A measuring system for measuring performance of an imaging optical system by use of an interferometer, said measuring system comprising:

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an interferometer arranged to measure transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side imaging points of the plural measurement points are measured; and

a computing unit being communicated with said interferometer, said computing unit being operable to calculate ~~a wavefront as measured by said interferometer and~~ at least one of ~~a wavefront aberration and an imaging state~~ <u>distortion and curvature of field</u> of the imaging optical system <u>on the basis of information regarding the transmission wavefronts and the position coordinates of the object side and image side imaging points</u>, and said computing unit being operable to correct <u>a calculated value related to</u> at least one of <u>the</u> distortion and ~~a focal plate at another~~ <u>curvature of field at a</u> measurement point of the imaging optical system, while taking, as a reference, at least one of distortion and ~~a focal plane~~ <u>curvature of field</u> at a standard point set along a plane perpendicular to the optical axis.

15. (Currently Amended) A measuring system according to Claim 14, wherein a result of <u>the</u> measurement of distortion and ~~focal plane~~ <u>curvature of field</u> with respect to the other measurement point is complemented on the basis of a result of ~~measurement~~ <u>measurements</u> made plural times to the distortion and the ~~focal plane~~ <u>curvature of field</u> with respect to the standard point.

16. (Original) A measuring system according to Claim 14, wherein the standard point is an object point and an image point on the optical axis of the imaging optical system.

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17. (Original) A measuring system according to Claim 14, wherein the position coordinates of the measurement point concern a relative coordinate system with respect to the position coordinates of the standard point.

18. (Currently Amended) A measuring system according to Claim 14, wherein correction of a change of distortion and ~~focal plane~~ curvature of field with respect to time is carried out by subtracting the amount of change from the measured values of them.

19. (Original) A measuring system according to Claim 14, wherein an optical system for measurement of the standard point is provided separately from an optical system for measurement of the other measurement point.

20. (Original) A measuring system according to Claim 19, wherein the optical system for measurement of the other measurement point is movable at the object plane side and the image plane side and ~~it~~ the optical system has a laser interferometer for monitoring the position coordinates thereof.

21. (Currently Amended) A measuring system according to Claim 19, ~~wherein there are further comprising~~ optical ~~system~~ systems for the other measurement points, of a number the same as the measurement points.

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22. (Original) A measuring system according to Claim 14, wherein the measurement with respect to the standard point and the other measurement points is carried out by use of one and the same optical system.

23. (Currently Amended) A measuring system according to Claim 22, wherein the same optical system for measurement of the standard point and the measurement point is movable at the object plane side and the image plane side, and there is further comprising a laser interferometer for monitoring the moved position coordinates.

24. (Original) A measuring system according to Claim 14, wherein, in an optical system for the other measurement point, a chief ray of light impinging on the measurement points is registered with a direction of a chief ray of the imaging optical system.

25. (Currently Amended) A projection exposure apparatus for performing projection exposure by use of an imaging optical system, said apparatus comprising:

an imaging optical system;

an interferometer arranged to measure transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side imaging points of the plural measurement points are measured; and

a computing unit being communicated with said interferometer, said computing unit being operable to calculate a wavefront as measured by said interferometer and at least one

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of ~~a wavefront aberration and an imaging state~~ <u>distortion and curvature of field</u> of the imaging optical system <u>on the basis of information regarding the transmission wavefronts and the position coordinates of the object side and image side imaging points</u>, and said computing unit being operable to correct <u>a calculated value related to</u> at least one of <u>the</u> distortion and ~~a focal plane at another~~ <u>curvature of field at a</u> measurement point of the imaging optical system, while taking, as a reference, at least one of distortion and ~~a focal plane~~ <u>curvature of field</u> at a standard point set along a plane perpendicular to the optical axis.

26. (Original) A method of measuring performance of an imaging optical system by use of an interferometer, said method comprising the steps of:

measuring, by use of the interferometer, transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side imaging points of the plural measurement points are measured;

calculating a wavefront as measured by the interferometer and at least one of a wavefront aberration and an imaging state of the imaging optical system; and

correcting a measured value related to at least one of a wavefront aberration and an imaging state of the imaging optical system at another measurement point, while taking, as a reference, at least one of a wavefront aberration and an imaging state at a standard point set along a plane perpendicular to the optical axis.

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27. (Currently Amended) A method of measuring performance of an imaging optical system by use of an interferometer, said method comprising the steps of:

measuring, by use of the interferometer, transmission wavefronts separately or sequentially, in relation to at least one of plural measurement points defined along a plane perpendicular to an optical axis of the imaging optical system, wherein position coordinates of object side and image side image points of the plural measurement points are measured;

calculating a wavefront as measured by said interferometer and at least one of a wavefront aberration and an imaging state of the imaging optical system; and

correcting at least one of distortion and a focal plane curvature of field at another measurement point of the imaging optical system, while taking, as a reference, at least one of distortion and a focal plane curvature of field at a standard points point set along a plane perpendicular to the optical axis.